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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/801,414

03/16/2004

Tyler Lowrey

2024.47

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7590

12/01/2004

ENERGY CONVERSION DEVICES, INC.
2956 WATERVIEW DRIVE
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EXAMINER

PHAM, HOAI V

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/801,414

Applicant(s)

LOWREY ET AL.

Examiner

Hoai v Pham

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 14-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 14-15, and 17-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Doan et al. [U.S. Pat. 6,150,253].

With respect to claim 1, Doan et al. (figs. 1-12, cols. 6-8) discloses a method for making a programmable resistance memory element, comprising:

providing a conductive material (102) (see fig.1);

forming a sidewall spacer (104) as a mask over said conductive material (see fig.

3);

using said sidewall spacer (104) as a mask, removing a portion of said conductive material to form a raised portion (114) of said conductive material under said spacer (see fig. 6); and

forming a programmable resistance material (120) in electrical contact with said raised portion (see fig.10).

With respect to claim 2, Doan et al. discloses that the removing step comprises etching said conductive material (col. 7, lines 1-5).

With respect to claim 3, Doan et al. discloses that the etching step comprises anisotropically etching said conductive material (col. 7, lines 3-5).

With respect to claim 4, Doan et al. discloses that the etching step comprises isotropically etching said conductive material (col. 7, lines 3-5).

With respect to claims 14-15, Doan et al. discloses that the sidewall spacer (104) comprises a dielectric (oxide) (col. 6, line 40).

With respect to claims 17-18, Doan et al. discloses that the programmable resistance material (120) comprises a phase change material (a chalcogen element) (col. 7, lines 55-59).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doan et al. [U.S. Pat. 6,150,253] in view of Cronin et al. [U.S. Pat. 5,651,857].

Doan et al. substantially discloses all the limitation as claimed above except the sidewall spacer comprises polysilicon. However, Cronin et al. discloses that the sidewall spacer can be formed of polysilicon or oxide (see col. 5, lines 12-15).

Therefore, it would have been obvious to one of ordinary skill in the art to select either oxide or polysilicon as taught by Cronin et al. into the process of Doan et al. to form the sidewall spacer as an etch mask.

Allowable Subject Matter

5. Claims 5-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to disclose the steps of forming a second layer over said conductive material; forming a sidewall surface in said second layer; forming a third layer over said sidewall surface; and removing a portion of said third layer, while having the characteristics as recited in claim 1.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoai v Pham whose telephone number is 571-272-1715. The examiner can normally be reached on M-F.

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Hoai Pham', with a long horizontal flourish extending to the right.

HOAI PHAM
PRIMARY EXAMINER